

## Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

### Listing of Claims:

1. (*Currently amended*) Method A method for mass-spectrometric analysis of a known mutation sites site in genome DNA ~~by mutation-dependent primer extension, the method comprising:~~  
    ~~wherein the nucleotide chain of the~~ providing an extension primer having a  
    nucleotide chain that contains a photocleavable linker and attaching the primer to  
    the DNA adjacent to the mutation site;  
    extending the primer using mutation dependent primer extension;  
    ~~which is cleaved by~~ cleaving the photocleavable linker with UV light  
    irradiation to produce a DNA cleavage product; and  
    analyzing the DNA cleavage product using before mass spectrometric  
    analysis.
2. (*Currently amended*) Method A method as in Claim 1, wherein the linker is located 3 to 10 bases from the 3' position of the primer.
3. (*Currently amended*) Method A method as in Claim 1, wherein the linker is derived from the class of chemical compounds known as o-nitrobenzyl derivatives.
4. (*Currently amended*) Method A method as in Claim 1, wherein the extension is carried out by using a mixture of four types of nucleoside triphosphate derivative terminators so that extension only takes place by precisely one base.

5. (*Currently amended*) ~~Method~~ A method as in Claim 4, wherein dideoxynucleoside triphosphates are used as the nucleoside triphosphate derivative terminators.
6. (*Currently amended*) ~~Method~~ A method as in Claim 1, wherein the extension ~~using~~ uses a mixture of non-terminating and terminating nucleoside triphosphate derivatives and is carried out so as to produce length differences in the extended primers of at least one base depending on mutation.
7. (*Currently amended*) ~~Method~~ A method as in Claim 1, wherein the ~~an~~ internucleotide cyanoethyl phosphite bond of the primer nucleotides between the linker and the 3' position ~~are~~ is sulphurized forming phosphorothioate nucleotides, and wherein the phosphorothioate nucleotides are alkylated before analysis by mass spectrometry.
8. (*Currently amended*) ~~Method~~ A method as in Claim 7, wherein the extension is carried out with a mixture of four types of nucleoside triphosphate derivative terminators and the negatively charged ions are measured in the mass spectrometer.
9. (*Currently amended*) ~~Method~~ A method as in Claim 8, wherein dideoxynucleoside triphosphates are used as the nucleoside triphosphate derivative terminators.
10. (*Currently amended*) ~~Method~~ A method as in Claim 9, wherein the extension is carried out with a mixture of four types of nucleoside triphosphate derivative terminators in which the nucleotide ~~which~~ that is inserted, like the phosphorothioate nucleotides of the primer, is alkylated before analysis by mass spectrometry and the negative ions are measured in the mass spectrometer.

11. (*Currently amended*) ~~Method~~ A method as in Claim 10, wherein  $\alpha$ -thiodideoxynucleoside triphosphates are used as the nucleoside triphosphate derivative terminators.
12. (*Currently amended*) ~~Method~~ A method as in Claim 11, wherein each one of the  $\alpha$ -thionucleoside triphosphate derivative terminators carries a chemical group with a positive charge in addition.
13. (*Currently amended*) ~~Method~~ A method as in Claim 10, wherein one of the phosphorothioate nucleotides of the extension primer carries a chemical group with a positive charge.
14. (*Currently amended*) ~~Method~~ A method as in Claim 13, wherein the chemical group carrying the charge is located on the second, third or fourth nucleobase counting from the 3' position.
15. (*Currently amended*) ~~Method~~ A method as in Claim 12, wherein the a chemical group carrying the charge is a quaternary ammonium group.
16. (*Currently amended*) ~~Method~~ A method as in Claim 10, wherein the primer for the primer extension carries an anchor for the attachment of a charge group which is attached before the analysis by mass spectrometry is carried out.
17. (*Currently amended*) ~~Method~~ A method as in Claim 16, wherein the anchor carries a free amino group.
18. (*Currently amended*) ~~Method~~ A method as in Claim 1, wherein ionization in the mass-spectrometric mass determination is achieved by using matrix-assisted laser desorption and ionization (MALDI).

19. (*Currently amended*) Method A method as in Claim 12, wherein ionization in the mass-spectrometric mass determination is achieved by using matrix-assisted laser desorption and ionization (MALDI), and wherein a matrix is used which does not contribute to the transfer of charge to the DNA products being measured.
20. (*Currently amended*) Method A method as in Claim 19, wherein  $\alpha$ -cyano-4-hydroxycinnamic acid methyl ester is used as the matrix.
21. (*Currently amended*) Method A method as in Claim 1, wherein the 5' position of the extension primer is biotinylated.
22. (*Currently amended*) Method A method as in Claim 21, wherein the ~~primers~~ primer, after extension, are is bonded via biotin to ~~streptavidine molecules which are a streptavidin molecule that is~~ fixed to a surface for the purpose of purging all the components of the reaction fluid ~~which that~~ was required for the extension.
23. (*Currently amended*) Method A method as in Claim 22, wherein the ~~streptavidine~~ streptavidin is bonded to the a surface of a sample support which is also used for further mass-spectrometric analysis.